ABSTRACT OF THE INVENTION

Apparatus and associated method for constructing a quantifiable model, comprising: an object definer for converting user input into at least one cell having inputs and outputs, a relationship definer for converting user input into relationships associated with said cells such that each said relationships is associatable with said cells via one of said inputs and outputs, a quantifier for analyzing a data set to be modeled to assign quantitative values to said relationships and to associate said quantitative values with said associated inputs and outputs, thereby to generate a quantitative model. The model is useful in automatic decision-making and process control and for process simulation and study. The model building methodology provides for structured and quantity reduced investigation of process data since a qualitative model is used to guide the data analysis. The methodology also allows for obtaining new information regarding such a process through the resulting quantitative model.